Date: Fri, 29 Apr 94 04:30:25 PDT
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V94 #113
To: Ham-Homebrew

Ham-Homebrew Digest Fri, 29 Apr 94 Volume 94 : Issue 113

Today's Topics:

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

Date: 28 Apr 1994 21:04:41 GMT
From: library.ucla.edu!europa.eng.gtefsd.com!howland.reston.ans.net!
news.cac.psu.edu!news.tc.cornell.edu!travelers.mail.cornell.edu!
newsstand.cit.cornell.edu!newsstand.cit.cornell@ihnp4.ucsd.edu
Subject: Help with ATV antenna tuning, UHF SWR meter advice, general ATV stuff?
To: ham-homebrew@ucsd.edu

In article <jefman-270494230322@pme15.pomo.wis.net> Jeff Mann,
jefman@utcc.utoronto.ca writes:
>don't seem to be getting the kind of performance I think I should, it's
>pretty fuzzy at only three miles away with a direct line of sight. I need
>some advice on how to go about tuning the antenna. What kind of test
>equipment do people use? I've gone to both my local ham stores and
they've
>told me they don't have any SWR meters that will work up to 500MHz with
>under one watt of power. With no SWR or power meter, it's pretty hard to
>tune the antenna. Are there any other methods? Can anyone recommend a
good

>SWR meter? Or should I give up on making my own antenna and just buy one
>(what the ham store recommended)? Anyone else with experience using the
>8-element quagi for ATV? What kind of performance should I expect if it's
>working properly?

Hi Jeff,
I've been using quagis on ATV and other stuff for several years now with good results. I suspect that the bandwidth of a quagi, though better than a straight yagi, is still a bit narrow for a full atv signal, but it seems to
work. I get a low swr for about 3-4 mhz bandwidth typically.

I've typically cut mine for the video carrier frequency or a little higher,
tuned them using a radio shack VHF/UHF wattmeter/SWR bridge and my ht and then tweaked them with the video signal. The RS meter has a 15 and 60 watt scales, isn't terribly accurate, but it can tell you when you are reducing
the reflected power and give you a feeling for how good or bad the antenna is.
Do I trust the SWR measurement, not a bit. But that doesn't mean it isn't useful.
(cheap too, $30 currently) I usually use my HT to take swr measurements at 1 mhz intervals and trim the driven element and if necessary the reflector to
get the response I want. SWR with the video signal will be higher than with a
carrier because parts of the signal (sound carrier, etc) will be up the swr curve
a bit and you have a lower sideband (well,you don't) that is out of the passband of
the beam. Haven't toasted any finals yet with this rough and ready method.

I took the data in the handbook for the 440 and 432 quagis, developed a simple
pascal program to interpolate them to get data for other frequencies, and use
that to calculate antennas for need (421 for repeater reception, 439 for the
input or simplex, 435 for Oscar work, etc)

Currently we are using a home brewed quagi (built on a 2x4 boom - usually I use
a 1x2) for our ATV repeaters transmit antenna. I use a couple for field shots, other
stations in the area use them for both transmitting and receiving. So they do work.

Ranges are in the 10-20 mile range for P4-P5 from the repeater running 10 watts
at good elevation. Talking back to the repeater range with a watt runs in the 5 mile
plus range with good results. Sounds like there is something awry in your system at
one end or another - or it could just be terrain.

Be interested in hearing about your experiences - here or email.

73 de Kevin, WB2EMS

Date: 28 Apr 94 13:02:20 GMT
From: agate!howland.reston.ans.net!cs.utexas.edu!convex!news.duke.edu!
solaris.cc.vt.edu!news.ans.net!paperboy.amoco.com!apctrc!msc.edu!mr.net!
medtronic.com!jh4658@ucbvax.berkeley.edu
Subject: Liquid state???
To: ham-homebrew@ucsd.edu

K.B. Teo (teokb@elec.canterbury.ac.nz) wrote:

: Dear newsreaders,

: This is my idea for a 'liquid' state radio, which I intend to make for
: my electronics assignment (worth 50% of years mark). I would like your
: thoughts on it, and if possible, give me information on how to build
: the capacitor, the inductor, the antenna, the detector and the
: battery. It's a crystal set, but it is indeed a
: very special one (liquid state):

<-stuff deleted->

: Battery
: -------
: This is a beer and copper coins job. However, I can only get about 1.2V
: out of 8 copper coins with beer soaked cloth in between. How can I
: get about 3V out of it so I can drive a pair of headphones?

What brand of beer are you using?

<-stuff deleted->

Date: 28 Apr 94 20:29:58 GMT
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!vixen.cso.uiuc.edu!

moe.ksu.ksu.edu!cis.ksu.edu!mac@network.ucsd.edu
Subject: Liquid state???
To: ham-homebrew@ucsd.edu

>K.B. Teo (teokb@elec.canterbury.ac.nz) wrote:

> This is my idea for a 'liquid' state radio, which I intend to make for
> my electronics assignment (worth 50% of years mark)....

> Battery
> -------
> This is a beer and copper coins job. However, I can only get about 1.2V
> out of 8 copper coins with beer soaked cloth in between....

Make a taller stack.
Use lemon juice.
Or use urine to make a "primary" cell
(often called a "P-cell" for obvious reasons!   :-)

--Myron.
--
Five boxes preserve our freedoms: soap, ballot, jury, witness, and cartridge.
Myron A. Calhoun, PhD EE; Assoc. Professor (913) 539-4448 home
INTERNET: mac@cis.ksu.edu   532-6350 work, 532-7353 fax
UUCP: ...rutgers!depot!mac   Packet radio: W0PBV@N0ARY.#NOCAL.CA.USA.NA

Date: Thu, 28 Apr 1994 13:30:51 GMT
From: news.mentorg.com!srp!jbate@uunet.uu.net
Subject: R2 T2 pcb source wanted
To: ham-homebrew@ucsd.edu

> >In article <1994Apr14.132347.26126@news.mentorg.com>, jbate@rtp-nc.mentorg.com
> >(John Bate) writes:
> >
> >>I'm trying to find a source for the R2 and T2 pcb as
> >
> >From reading similar threads and hearing the experience of some local hams, you
> >might try calling him. I was just about to make out a check for the R2 board
> >myself (sourced all of the parts already). That is the direction I'm going to
> >pursue.
>
> Well, I ordered some boards from Applied Radio Science in Dec. 1993. I
> just received the order with $5 refund on shipping. Funny thing is, the
> return address on the envelope is:
>
>   Campbell

>   Rt 1 Box 195
>   Chassell, MI 49916
>
> The boards are very well made and I'm glad to get them.
>
> 73,
> --

I did call Rick Campbell at his home in MI. Nice guy. Told me that they were not able to
produce anymore boards through their current supplier. However, he was actively looking
for another source for the boards and that there were two potentials on line.

Rick also mentioned that he had talked to Wes Hayward (w7zoi?)
about some enhancements to Rick's design. I'm not sure what they were though.

Be on the lookout for updates and new designs in upcoming QSTs.

73s,

john (ki7hs)

Date: 28 Apr 94 19:03:37 GMT
From: agate!darkstar.UCSC.EDU!news.hal.COM!olivea!charnel!yeshua.marcam.com!
news.kei.com!uhog.mit.edu!wupost!cs.utexas.edu!howland.reston.ans.net!
europa.eng.gtefsd.com!library.ucla.edu!csulb.
Subject: Screen voltage on 4CX250B's: One more question...
To: ham-homebrew@ucsd.edu

Thank you for the comments on my last posting about 4CX250B screen voltage supplies. From this I gathered that a shunt regulator was good, and a series regulator was bad (due to possible negative screen current). On this advice, I picked up some 100V 50W zeners, and I already have some 27V 10W zeners. I'll arrange these into a shunt regulator, but here's the questions:

(1) To have choice of several screen voltages, can I start w/ say 300V shunt regulated, then use some of the 27V zeners reverse biased in series to cut the voltage if desired, or should I arrange taps in the shunt zener string itself (i.e., two 100V and four 27V zeners in the shunt regulator)?

(2) For two tubes, should I feed them from a common screen voltage supply, or give each it's own separate zener shunt regulator?

(3) I was told several times that the screens can be killed due to excessive

screen current (ask me - I nuked an 8874 grid in my earlier days - $$!$$!!!);
would a low-current fuse on each screen DC feed work (say 1/32A per tube)
or should I try for a solid state regulator?

Or should I give up on the whole mess and go for grounded grid ;-)

73 Dave WB0GAZ dgf@netcom.com

Date: 29 Apr 1994 02:48:02 -0400
From: ihnp4.ucsd.edu!library.ucla.edu!europa.eng.gtefsd.com!news.ans.net!
hp81.prod.aol.net!search01.news.aol.com!not-for-mail@network.ucsd.edu
Subject: Screen voltage on 4CX250B's: One more question...
To: ham-homebrew@ucsd.edu

In article <dgfCozGy2.7Gy@netcom.com>, dgf@netcom.com (David Feldman) writes:

>Or should I give up on the whole mess and go for grounded grid ;-)

My input: on the smaller tetrodes like the 4CX250B, grounded grid does not
absolve you from supplying screen voltage. Many, many times have the EIMAC
guys written that you don't tie grid and screen together in cathode-driven with
small tetrodes, because that darn screen will still draw current and melt down.

You can (of course) do it with "higher perveance" tubes like 4-400A, 4-1000A,
etc. But, unfortunately, you're still stuck with the screen supply!

Date: Thu, 28 Apr 1994 20:55:12 GMT
From: newsgate.melpar.esys.com!melpar!phb@uunet.uu.net
Subject: Vertical yagi mounting
To: ham-homebrew@ucsd.edu

     In a recent on-the-air discussion, I pointed out the error
of mounting a two-meter yagi in the vertically-polarized
position while using a metal mast (assuming that the antenna
mounts from the center of the boom and not at one end, the
latter being common for 3- and 4-element yagis).

     One of the on-the-air participants, admittedly a new ham,
became very defensive and said that he used a Cushcraft
A147-11 vertically polarized on a metal mast, and his antenna
"had directivity."

     So, I have a couple of questions based on my assumptions
as follows:

1) I assumed that a metal mast, being in effect a non-resonant "extra" element suddenly stuck in the middle of a parasitic array, would detune the antenna and probably throw the radiation pattern off by creating either more than one lobe or skewing the main lobe above or below the plane of the array by some noticeable amount. Is this assumption anywhere close to correct?

2) I once heard two hams testing a A147-11 which ham A had just installed, and he was trying to figure out why station B was stronger when the antenna was about 30 degrees off-azimuth from Station B's known location (the antenna was vertical, BTW, and the two stations were about 60 miles apart). Ham A was using a - you guessed it - metal mast. Does this result sound reasonable?

3) Has anyone out there ever purposely installed a yagi array vertically using a metal mast and tried to measure the effects (VSWR, azimuthal pattern accuracy, etc.)? I have a A148-10S which is currently mounted horizontally, and have been toying with rotating it into the vertical plane and trying to measure the effects, but maybe someone else has tried it out of scientific curiosity.....

(|_|) * Paul H. Bock, Jr. K4MSG * Internet: pbock@melpar.esys.com
 | |) * Senior Systems Engineer * Telephone: (703) 560-5000 x2062

   "You can have my bug when you can pry my cold, dead fingers from
    around it....." - anonymous radiotelegraph operator

Date: 28 Apr 1994 17:03:33 -0700
From: ihnp4.ucsd.edu!swrinde!emory!news-feed-2.peachnet.edu!news-feed-1.peachnet.edu!news.duke.edu!eff!news.kei.com!ssd.intel.com!chnews!ornews.intel.com!ornews.intel.com!not-for-mail@network.ucsd.
Subject: Vertical yagi mounting
To: ham-homebrew@ucsd.edu

In article <phb.767566512@melpar> phb@syseng1.melpar.esys.com (Paul H. Bock) writes:
>   In a recent on-the-air discussion, I pointed out the error
>of mounting a two-meter yagi in the vertically-polarized
>position while using a metal mast (assuming that the antenna
>mounts from the center of the boom and not at one end...

>   One of the on-the-air participants, admittedly a new ham,

>became very defensive and said that he used a Cushcraft
>A147-11 vertically polarized on a metal mast, and his antenna
>"had directivity."

According to my simplex pal across town, his Cushcraft yagi manual actually says to mount them that way or at least it has pictures of the yagi vertically mounted with the mast sticking up only a couple of inches above the boom. Other weirdness in the Cushcraft manual is a picture showing the coax routed across the top of the insulated elements. Maybe the marketing folks at Cushcraft took all the pictures. I've seen their collinear arrays upside down in magazine ads.

>1) I assumed that a metal mast, being in effect a non-resonant
>"extra" element suddenly stuck in the middle of a parasitic
>array, would detune the antenna and probably throw the radiation
>pattern off by creating either more than one lobe or skewing
>the main lobe above or below the plane of the array by some
>noticeable amount. Is this assumption anywhere close to correct?

I've heard that if you have to do it, then stick the mast up until its even with the top elements so as not to destroy the symmetry so much. I've modeled both ways with the MN antenna program and it screws up the pattern pretty good but mostly at the expense of forward gain. My real experience is not so easily measured but I know a 7 element 2 meter yagi improved for both vertically and horizontally polarized signals after I mounted it horizontal. Previously I had tried both metal and wood masts but still ran the coax down the wood mast with the yagi vertical. The coax will also become an unbalanced and unwanted element this way.
My KLM 2M14C circular yagi manual says to mount the thing on a non-conductive mast or boom and run the coax off the back end. It works okay this way. I found a telescoping fiberglass broom or window squeegee pole at the hardware store that is pretty strong and about 6 feet long when collapsed. You only need to get about 4 feet away from metal but 6 or 7 feet is better at 2 meters.
I don't know what others think about this but the only place for a metal mast on a vertically polarized yagi is on the end where it may act as a reflector.
Better yet, buy two yagis and cophase them on a horizontal boom.

--
zardoz@ornews.intel.com WA7LDV

End of Ham-Homebrew Digest V94 #113
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